

Nel presente documento sono riportate delle evidenze relative alla effettiva necessità avvertita dai medici di sostanze, materiali e/o strumenti deputati alla disinfezione dei propri stetoscopi.

Guida alle letture:

- Elementi di maggiore interesse e significatività: **sottolineati e riportati in grassetto**.
- Note per abbreviazioni ed acronimi: **indicate in rosso**
- Note bibliografiche: seguono una numerazione progressiva indicata da numeri di richiamo nel testo e sono ubicate a piè pagina.
- Figure e tabelle: **evidenziate in giallo** nell'elaborato e riportate alla fine del testo

“Most participants (80%) reported **cleaning their stethoscope within the last week and a smaller proportion (59%) at least once a shift**. Only 8% of all ED staff, all of whom were nurses, reported **cleaning their stethoscope before or after each patient encounter**. Ethyl alcohol-based wipes (n=49), hand sanitizer (n=35), and propyl alcohol based wipes (n=21) were the most commonly used cleaning methods. The most commonly reported barriers to cleaning stethoscopes in the ED were **a lack of time or being too busy** (n=57), forgetfulness (n=34), and a lack of access to cleaning supplies (n=18).” [1](*Note; ED=Emergency Department*)

“..clinicians were categorized by role and training (physician, nurse, respiratory therapist, or other), were queried about **how often they cleaned the stethoscope** (between every patient, several times a day, once daily, once monthly, or rarely if ever), and were asked to identify which **cleaning agent** was used (alcohol wipes, soap and water, antiseptic wipes, or the alcohol-based hand rub). The mean number of colonies was compared between those without covers and those with short-term” [2]

“...**Only 11 of 74 (15%) health care workers cleaned their stethoscope between every patient. One third(25/74, 34%) cleaned several times a day, with slightly less (22/74, 30%) cleaning their stethoscopes daily**. Fewer (9/74, 12.2%) of those surveyed rarely if ever cleaned their stethoscopes, and 7 of 74 (9.5%) did so once a month. Most surveyed health care workers 56/74, (76%) used alcohol wipes to clean their stethoscope compared with only 15 of 74 (20%) who used antiseptic wipes. The mean colony counts **were not dramatically different between these types of cleaning methods** (188.5 and 201.3, respectively). One individual used soap and water as a cleaning method. Data on method of stethoscope cleaning are stratified by clinician type in **Table 2**. [2]

“..Seventy-six percent of respondents **believed that infection transmission occurs via stethoscopes**. However, **only 24% reported disinfecting their stethoscope after every use...**”;[3]

“ The predominant method of disinfection was use of either an alcohol wipe/swab (67%) or a wipe/swab impregnated with other disinfectants (18%), such as quaternary ammonium or chlorhexidine. A minority reported using alcohol-based hand sanitizer on their stethoscope (14%). **Sixty-eight percent of providers reported spending 10 or fewer seconds per disinfection episode**. The proportion of respondents who reported routinely disinfecting different parts of the stethoscope varied (diaphragm, 99.7%; bell, 94.9%; plastic tubing, 83.1%; metal tubing, 58.9%; earpieces, 60.0%). Respondents were asked about potential barriers to routine stethoscope disinfection. **A majority (52%) of providers agreed that they lacked access to devices or materials for disinfection when needed. Other factors, such as time required, difficulty of the**

task, lack of reminders, or concern about stethoscope wear and tear, were less frequently cited as obstacles to disinfection.” [3]

“..To reduce bacterial colonization on the MPs of HCWs, staff education, handwashing, use of alcohol disinfectant wipes, use of alcohol- chlorhexidine wipes, and consideration of the restrictions regarding the use of MPs in certain highrisk areas have been recommended. Similarly, these precautions may be adopted for the phones of patients, patients’ companions, and visitors. Although we have not carried out any study about the MPs’ disinfection, **we suggest ultraviolet irradiation as an alternative, fast, and frequently applicable method for disinfection of the MPs**[4]. *(Note; MBs=Mobile Phones, HCVs=Health Care Workers)...*”

“..**Several authors have recommended further studies into antibacterial covers**, such as those made of metals or silver nanotechnology or investment **in UV-light sanitisers/decolonising charging apparatus...**”[5]

The degree of contamination (bacterial count, cfu/stethoscope) according to professional rank nursing versus the medical staff's stethoscopes is shown in Figure 2. Although one third of the stethoscopes were contaminated with more than 100 cfu/stethoscope, there were not microbiologically relevant differences ($P=0.3$) between nurses and physicians. [6]

“The frequency of stethoscope cleaning by ED personnel is shown in **Figure 3**. Upon analysing the stethoscope cleaning habits of the health care staff of the ED, **45% of them cleaned the stethoscope once a year or never and 35% cleaned it monthly. Thirty percent (13/43) of clinicians that were interviewed had never cleaned the stethoscope. Nursing staff cleaned it more frequently: 22% did so weekly/monthly versus 11% of the medical staff ($P<0,05$).** Likewise, the percentage of doctors that cleaned it annually or never (29%) was higher than that of nursing staff (15%) ($P<0,05$). The data show the efficacy of **the cleaning solutions** which were used and establishes **their antiseptic effects on the micro-organisms isolated in our series.** [6]*(Note; ED=Emergency Department)*

“All the ICU nursing staff questioned claimed to have cleaned the bedside stethoscopes in their bedspace at least once during their current shift (Table 1). **Twenty out of 22 (91%) cleaned the stethoscope every time it was used and 2 out of 22 (9%) cleaned it at the start of their shift.** Medical staff cleaned their personal stethoscopes infrequently and of the 10 doctors and two medical students visiting the unit only three (25%) cleaned either daily or after every use, three (25%) cleaned every one to 6 months and two (17%) had never cleaned their personal stethoscopes. **In contrast to medical staff all the allied health professionals visiting the unit claimed to clean their personal stethoscopes at least daily and frequently after every use....**”[7] *(Note; ICU= Intensive Care Unit)*

“Use of **isopropyl alcohol swabs** designed to prepare skin for venepuncture was the **preferred method of cleaning** with 29 of the 46 questioned favouring this method. Eight applied **alcohol gel** designed for hand washing and only one person used soap and water to clean their stethoscope. The remaining seven, who were all ICU nurses, cleaned their stethoscopes with detergent wipes designed for cleaning hospital equipment such as trolleys.” [7]*(Note; ICU= Intensive Care Unit)*

Overall, 48% of health care providers **cleaned their stethoscopes daily or weekly, 37% monthly, 7% yearly, and 7% had never cleaned them.** Cleaning the stethoscope’s diaphragm resulted in an immediate reduction in the bacterial count—by 94% with alcohol swabs, 90% with a non-ionic detergent, and 75% with antiseptic soap. [8]

The cleaning of stethoscopes by healthcare professionals varies in frequency. A study in 2001 looked at the cleaning frequency of stethoscopes in 150 personnel: **48% cleaned their stethoscopes daily, and 7% admitted to never cleaning it at all. It has been recommended that stethoscopes be cleaned regularly with propyl alcohol**, although there is evidence that C. difficile spores are not reliably killed by alcoholbased agents, chlorhexidine, hexachlorophene, iodophors, chloroxylenol or triclosan. The advice to clean stethoscopes with alcohol may therefore have limited impact on any transmission of C. difficile. Although the rate of recovery of C. difficile in this study is low at 4.1%, this study demonstrates that, if selective media are used, C. difficile can be isolated from stethoscopes, and it highlights the need for frequent cleaning of this ubiquitous tool. [9]

“Although cleaning of stethoscopes after every use will be considered the most ideal manner of disinfecting it, it is **tedious and time consuming**.” [10]

“We found that the Tru-D device was effective in killing C.difficile spores, MRSA, and VRE inoculated onto surfaces in the laboratory and in hospital rooms. Disinfection of hospital rooms with Tru-D reduced the frequency of positive MRSA and VRE cultures by 93% and of C. difficile cultures by 80% on frequently touched surfaces.” [11] *(Note; Tru-D™ Rapid Room Disinfection device is a mobile, fully-automated room decontamination technology that utilizes ultraviolet-C irradiation to kill pathogens; MRSA=Saphylococcus Aureus meticillino-resistente; VRE: Enterococcus Vancomicina-resistente).*

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Figure 2-3 tratta da: **Nunez S, Moreno A, Green K, Villar J.** "The stethoscope in the Emergency Department: a vector of infection?" *Epidemiology and Infection*. Apr 2000;124(2):233-237

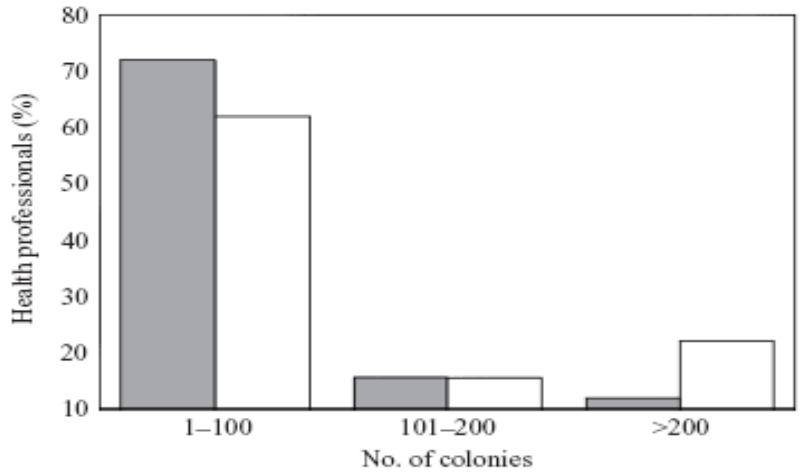


Fig. 2. Bacteria count (cfu/stethoscope) in stethoscopes of physicians ■ and nurses □ before cleaning, Canary Islands, Spain, 1996.

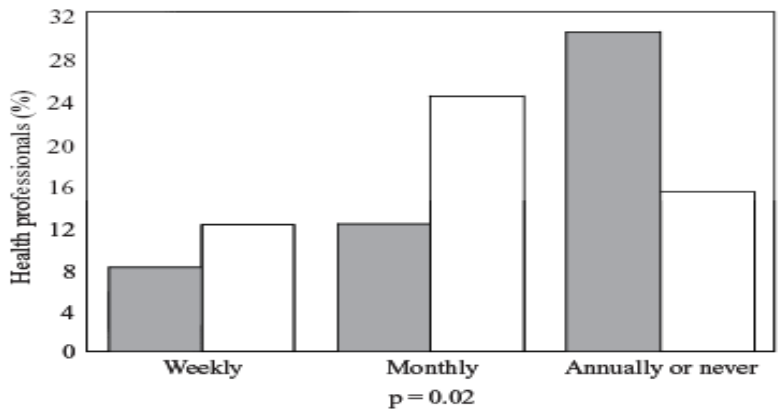


Fig. 3. Frequency of stethoscope cleaning by physicians ■ and nurses □, Canary Islands, Spain, 1996.

Tabella 2- tratta da: **Wood MW, Lund RC, Stevenson KB.** " Bacterial contamination of stethoscopes with antimicrobial diaphragm covers." *American journal of infection control.* May 2007;35(4):263-266

Table 2. Stethoscope surface colony counts with or without cover stratified by stethoscope care

	Physician		Nurse		Respiratory Therapist		Other		Totals	
	Cover	No Cover	Cover	No Cover	Cover	No Cover	Cover	No Cover	Cover	No Cover
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Frequency of stethoscope cleaning										
Between Every Patient	0 (0)	1 (50.0)	5 (55.6)	0 (0)	4 (44.4)	1 (50.0)	0 (0)	0 (0)	9 (100)	2 (100)
Several Times a Day	1 (6.3)	2 (22.2)	8 (50.0)	4 (44.4)	7 (43.8)	3 (33.3)	0 (0)	0 (0)	16 (100)	9 (100)
Once Daily	5 (71.4)	2 (13.3)	1 (14.3)	7 (46.7)	0 (0)	4 (26.7)	1 (14.3)	2 (13.3)	7 (100)	15 (100)
Once Monthly	0 (0)	1 (16.7)	1 (100)	4 (66.7)	0 (0)	1 (16.7)	0 (0)	0 (0)	1 (100)	6 (100)
Rarely if Ever	0 (0)	2 (40.0)	3 (75.0)	3 (60.0)	1 (25.0)	0 (0)	0 (0)	0 (0)	4 (100)	5 (100)
Totals	6 (16.2)	8 (21.6)	18 (48.7)	18 (48.7)	12 (32.4)	9 (24.3)	1 (2.7)	2 (5.4)	37 (100)	37 (100)
Method of stethoscope cleaning										
Alcohol Wipes	1 (3.5)	6 (22.2)	17 (58.6)	13 (48.2)	10 (34.5)	6 (22.2)	1 (3.5)	2 (7.4)	29 (100)	27 (100)
Antiseptic wipes	4 (66.7)	2 (22.2)	1 (16.7)	4 (44.4)	1 (16.7)	3 (33.3)	0 (0)	0 (0)	6 (100)	9 (100)
Alcohol Hand Gel	0 (0)	0 (0)	0 (0)	1 (100)	1 (100)	0 (0)	0 (0)	0 (0)	1 (100)	1 (100)
Soap and Water	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (100)	0 (0)
Totals	6 (16.2)	8 (21.6)	18 (48.7)	18 (48.7)	12 (32.4)	9 (24.3)	1 (2.7)	2 (5.4)	37 (100)	37 (100)